Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: TAQA North USA, Inc.
Well Name/Number: CHC 06-28-T34-R53
Location: SW NW Section 28 T34N R53E
County: Sheridan**, MT; Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)
Long drilling time: No, 20-30 days drilling time.
Unusually deep drilling (high horsepower rig): Triple derrick drilling rig to drill a Bakken formation vertical well, 8566'MD/TVD.
Possible H2S gas production: Slight possibility of H2S.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
_X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____

Comments: If there are existing pipelines for natural gas in the area then associated gas must be tied into system or if no gathering system nearby, limited quantities of associated gas can be flared under Board Rule 36.22.1220. No concerns.

Water Quality

(possible concerns)
Salt/oil based mud: yes- oil based drilling fluids system for production hole. Surface casing hole will be drilled with freshwater and freshwater mud system, rule 36.22.1001.
High water table: not likely.
Surface drainage leads to live water: No live water nearby – small drainage about ½ of a mile to the southeast .
Water well contamination: None, closest water well in the area is about 1/2 of a mile to the southeast; there appears to be saline seep monitor wells about ¼ of a mile to the east of this location and ½ mile southeast. Depth of these monitor wells are from 13' to 28'. Surface hole will be drilled with freshwater and freshwater drilling muds, rule 36.22.1001. The surface casing setting depth. of 17802' is below all freshwater zones.
Porous/permeable soils: sandy clay soils.
Class I stream drainage: No, Class I stream drainages.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
_X Closed mud system
_X Off-site disposal of **solids/liquids (in approved facility)**
_X Other: Freshwater drilling fluids will be land applied with surface owner approval.

Comments: 1780' surface casing well below freshwater zones in adjacent water wells and covering Fox Hills aquifer

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None anticipated.
High erosion potential: No high erosion potential at this wellsite. Moderate cut, up to 10' and small fill, up to 7.4', required.
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, well site 350'X350' to be constructed.
Damage to improvements: Slight, surface use is a cultivated wheat field.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will use existing county road, Malcolm Creek Road. A short road will be constructed into this location, about 600'. Surface hole (freshwater) cuttings will be mixed buried on site. Oil based invert mud cuttings will be trucked to an approved waste disposal facility. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Freshwater surface fluids and cuttings will be land applied. No concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Residences are, about ½ of a mile to the southeast, Possibility of H2S: Yes, slight from Mississippian Formations.
Size of rig/length of drilling time: Triple derrick drilling rig 20 to 30 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems (3,000 psig annular and double ram BOPs, Rule 36.22.1014).

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species: NH tracker website lists 2 species of concern. As follows: Bairds Sparrow, Le Conte's Sparrow The surface location is in a cultivated field.

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other:_____

Comments: Private cultivated surface lands. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like

done, if a species of concern are discovered at this location. No concerns.

Historical/Cultural/Paleontological

(possible concerns)
Proximity to known sites: None identified.
Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:_____
Comments: Private cultivated surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. No concerns.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: No concerns. Wildcat Bakken Formation well within an existing oil field, Flat Lake Field.

Remarks or Special Concerns for this site

Wildcat Bakken formation well,

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur, but can be mitigated in a short time.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Thomas Richmond
(title:) Administrator
Date: December 3, 2013

Other Persons Contacted:
Montana Bureau of Mines and Geology, Groundwater Information Center website.
(Name and Agency)
Sheridan County water wells
(subject discussed)

Deceember 3, 2013
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T37N R57E
(subject discussed)

December 3, 2013
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____